Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 90016

B.E / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024
Third Semester
Biotechnology
U23BT303 – CELL BIOLOGY
(Regulation 2023)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Write down the function of plastids and peroxisomes.	2	K1	CO1
2.	List out the salient features of Cell Theory.	2	K1	CO1
3.	How CDKs help in maintaining cell cycle?	2	K2	CO2
4.	Define cytokinesis.	2	K1	CO2
5.	Write down the role of permeases. Give examples.	2	K1	CO3
6.	Illustrate the mode of entry of virus into cells.	2	K2	CO3
7.	What are different modes of cell signalling?	2	K2	CO4
8.	What are secondary messengers?	2	K1	CO4
9.	Classify the different types of cell line.	2	K2	CO5
10.	Mention how contamination can be detected in cell culture.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Explain the structure and function of Plasma membrane, Golgi bodies and Nucleus.	13	K1	CO1
		(OR)			
	b)	Discuss the structure and function of microtubules and microfilaments.	13	K1	CO1
12.	a)	Explain the stages of Meiosis with a neat diagram.	13	K3	CO2
		(OR)			
	b)	Give an account on cell cycle and its stages. Explain how cell cycle is regulated by check points.	13	K3	CO2
13.	a)	Explain various types of ATP-dependent Proton pump with examples.	13	K3	CO3
		(OR)			
	b)	What is Secondary active transport? Illustrate it with an example.	13	K3	CO3
14.	a)	Explain the structure and function of any one nuclear receptor with an example.	13	K3	CO4
		(OR)			
	b)	Describe the structure and mechanism of action of GPCR receptors with a neat diagram.	13	K3	CO4
15.	a)	Explain the different techniques used for characterizing the cell line.	13	K3	CO5
		(OR)			
	b)	Demonstrate three dimensional culture and its types. Comment on role of matrix in cell growth.	13	K3	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Illustrate how small molecules such as glucose and amino-acids are transported across cell membrane. Explain how it differs from bulk transport of molecules.	15	K4	CO3
		(OR)			
	b)	Cell lines are essential for production of recombinant vaccines and pharmaceutics now a days. Discuss about the pros and cons of using cell lines and the challenges involved in maintaining it.	15	K4	CO5